UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1201 ELM STREET, SUITE 500
DALLAS, TEXAS 75270

October 28, 2019

STATEMENT OF BASIS

For Draft Title V Operating Permit for Monarch Waste Technologies LLC. Permit No R6FOP-NM-2019

The issuing office is: U.S. Environmental Protection Agency, Region 6
1201 Elm Street, Suite 500
Dallas TX 75270

The applicant is: David Cardenas, Principal
Monarch Waste Technologies (Monarch), LLC
12801 North Central Expressway, Suite 1600
Dallas, Texas 75243

I Environmental Protection Agency (EPA) Authority to Issue Part 71 Permits Pursuant to Title V of the Clean Air Act (CAA)

On July 1, 1996 [61 Federal Register (FR) 34202)], EPA adopted regulations codified at 40 Code of Federal Regulations (CFR) Part 71 setting forth the procedures and terms under which the Agency would administer a Federal Operating Permits Program, as required by Title V of the federal Clean Air Act, 42 U.S.C. § 7661a. These regulations were updated on February 19, 1999 (64 FR 8247) to incorporate EPA's approach for issuing Federal operating permits (Title V or Part 71 permits) to covered stationary sources in Indian country.

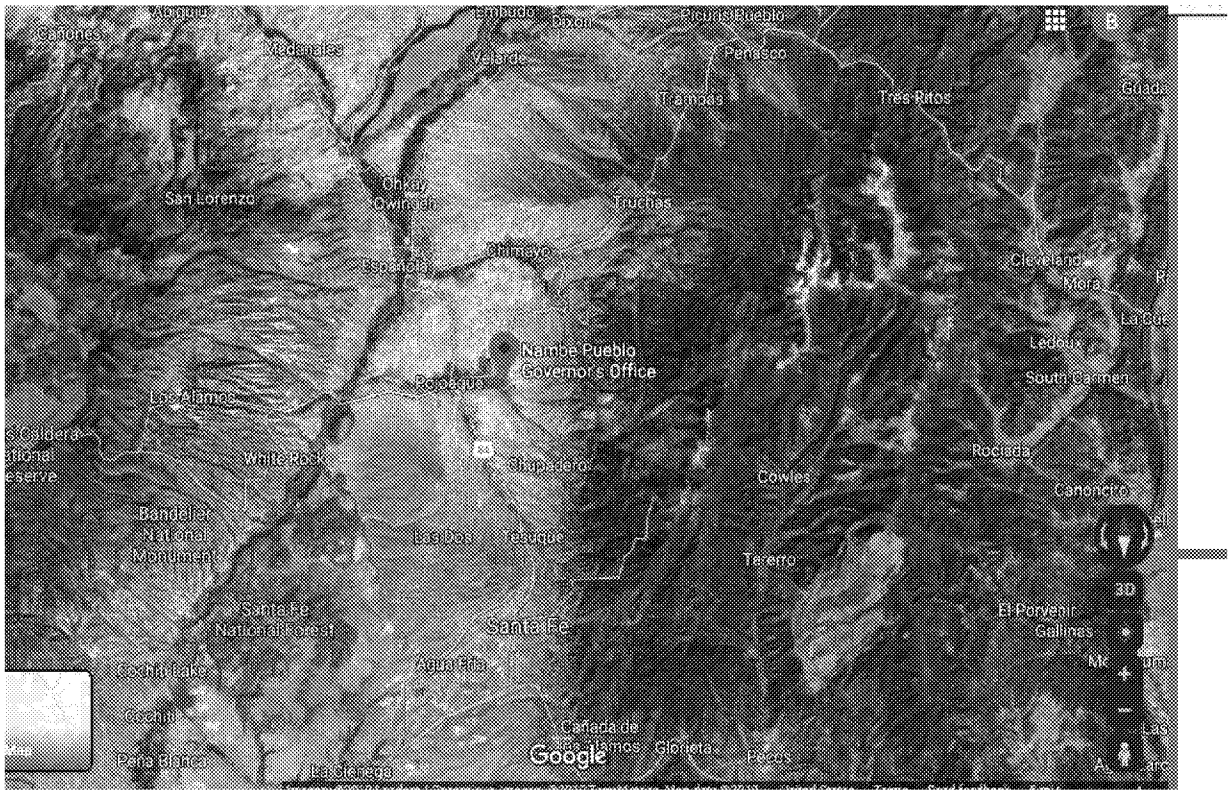
As described in 40 CFR § 71.4(a), EPA will implement a part 71 program in areas where a state, local, or tribal agency has not developed an approved part 70 program. Unlike states, Indian tribes are not required to develop Operating Permits Programs, though EPA encourages tribes to do so. See, e.g., Indian Tribes: Air Quality Planning and Management (63 FR 7253, February 12, 1998) (also known as the "Tribal Authority Rule"). Therefore, within Indian country, EPA will administer and enforce a part 71 Federal Operating Permits Program for stationary sources until a tribal nation receives approval to administer their own Operating Permit Program.

II Nambe Pueblo

A. **Geographical Boundaries**: The Pueblo of Nambe is a census-designated place in Santa Fe county, New Mexico and a federally recognized Indian Tribe. The last 2010 census recorded a total population of 1,818 people with about 723 people reported being Nambe exclusively.

The Pueblo encompasses nearly 20,000 acres consisting of towering cottonwoods, juniper, scrub oak, and an occasional outcropping of sand stone. The Rio Nambe whose

headwaters begin high in the mountains, 5 miles to the east of the reservation boundary, flows through the Pueblo and eventually feeds into the Rio Grande. The Pueblo is located approximately 18 miles north of Santa Fe at the base of the Sangre de Cristo Mountains. (US84/285 and NM 503). See the map below for surrounding areas and Pueblos.



III Current Leadership and Contact Information

Honorable Phillip A. Perez, Governor
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Route 1 Box17BB
Santa Fe, NM 87506
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Steve Rydeen, Environmental Director
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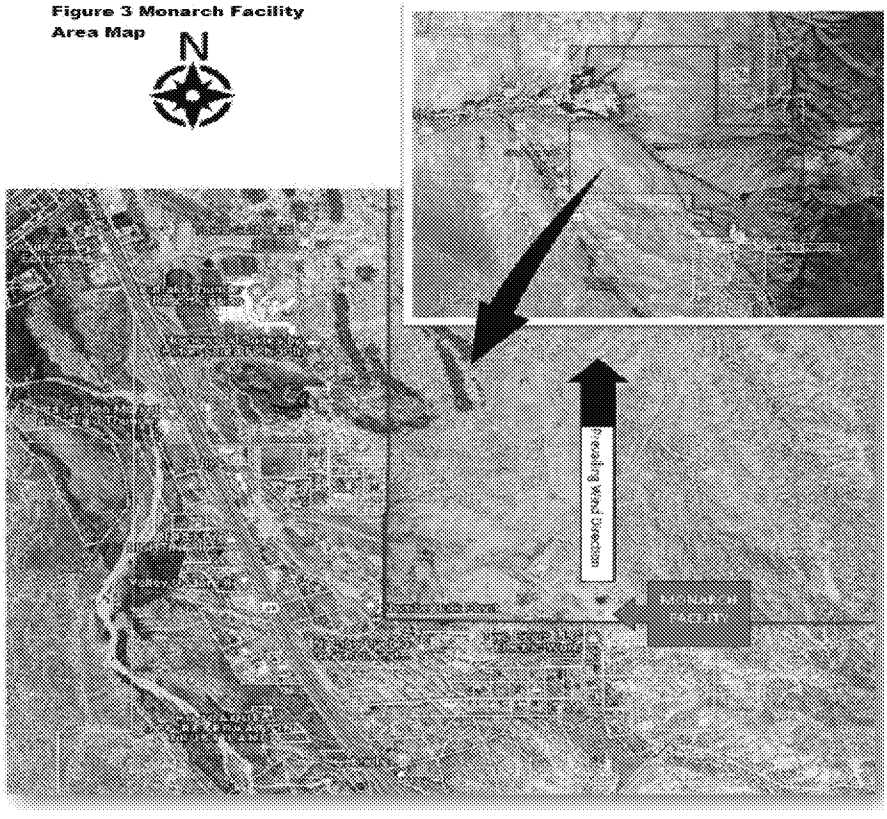
IV Local Air Quality and Attainment Status

The reservation is in an attainment area for all criteria pollutants. There are no known air quality issues within the vicinity of the Monarch facility. There are small local businesses but no known heavy industry. There is one known business and other buildings within the 1000 ft radius south of the Monarch facility. The prevailing winds are from the south to the north as determined from the Western Regional Climate center.

Figure 3 Monarch Facility Area Map



Copied from MNT application-site determination

V Facility Information

A. Location: The Monarch Pyromed 550 Pyrolysis System (Facility) is located in the Nambe Pueblo Development Corporation (NPDC) industrial park in a 10,000 square feet metal building near I-285/US Highway 84.

B. Facility address:
45A Tova Muusa Poe
Santa Fe, NM 87506
Latitude: 35° 50' 76.03" N Longitude: 105° 58' 55.5" W

C. Mailing address:
Monarch Waste Technologies, LLC
8501 Washington St. NE
Albuquerque, NM 87113

D. Owner/Operator/ Responsible Party
David Cardenas, Principal
Monarch Waste Technologies, LLC
8501 Washington St. NE
Albuquerque, NM 87113
Phone (505) 884-0995

VI Source Description - Operations and Products

Monarch's Pyromed 550 Pyrolysis System is subject to New Source Performance Standards (NSPS) for Hospital Medical Infectious Waste Incinerators (HMIWI) at 40 CFR Part 60, Subpart Ec. The Facility accepts Sharps & Biohazard Wastes, Trace Chemotherapy Wastes, RCRA Empty Containers, Pharmaceutical Wastes, and Controlled Substances from contracted clients and must meet all NSPS Subpart Ec requirements for incineration of these wastes.

The waste received at the Facility is sorted and stored according to the Waste Management Plan [40 CFR § 60.55c] prior to being introduced into the Pyromed 550 Pyrolysis System (HMIWI). The prepackaged waste is placed in a shredder and the waste is slowly pushed up an enclosed ramp where the vapors are pulled off and routed to a Thermal Oxidizer for combustion and the solid wastes continue into a knife-gate assembly (KGA) for automated loading into the Pyro Tube portion of the Muffle Furnace. A portion of the hot gases combusted in the Thermal Oxidizer are routed back to the exterior portion of the Muffle Furnace to indirectly heat the wastes within the Pyro Tube. The waste is decomposed by pyrolysis in the Pyro Tube and the decomposed material is pushed through the Pyro Tube to fall into the Char Vessel. In the Char Vessel, steam is added, and the temperature increases to continue a slow roasting of the material to create "Syngas" and a residue "Char" material. The Char residue is removed by pumps for collection in a container that can be emptied without halting operations; Char residue is then disposed of in an offsite landfill. The Syngas is routed to the Thermal Oxidizer for combustion. Combustion gases from the Thermal Oxidizer that are not routed back to the Muffle Furnace pass through a heat exchanger and are routed to the Glosfume system (Ceramic Filters) for neutraliziation of acidic gaseous compounds prior to exiting the stack on the exterior of the building. The Glosfume system is designed to be 99% efficient in capture of the particulate matter exiting the stack. Ash collected from the ceramic filters drops in an enclosed bin and is disposed of in an offsite landfill.

The Continuous Emissions Monitoring System (CEMS) for the HMIWI includes a MIR9000 analyzer for multi-gas monitoring of hydrogen chloride (HCl), carbon monoxide (CO), nitrogen oxides (NOx), and sulfur dioxide (SO2). Other monitors include oxygen (O2), and a particulate matter (PM) monitor with forward light scattering sensor. However, the HCl and PM CEMS shall not be used for compliance purposes until such time that certification testing is conducted concurrent with an annual performance test as required under the NSPS Subpart Ec. The facility has an integrated programmable logic controller (PLC) and data acquisition system (DAS) with an operator interface panel for overall operations of the HMIWI, the Glosfume (ceramic filter), and the CEMS. The integrated PLC allows automated shutdown and/or automatic cutoffs of certain system operations as well as automated dosing of a sorbent (bi-carbonate and activated carbon mix) for final cleaning of gases routed to the Glosfume. The Glosfume uses reverse pulse cleaning, so when the differential pressure across the inlet and outlet of the unit rises to a design set-point, a back-purge of compressed air is automatically initiated to clean the filters.

The equipment and detailed process description for the HMIWI as provided in the operating permit application form "GIS 5900-79" is in the table below.

Emission/Process Units Table

Unit List	Emission Point Number (EPN)	Description
Feed Hopper System	NA	HMIWI feed (See Appendix B for the type of feed).
Pyrolysis Sealed Tube	NA	Waste feed enters the pyrolysis chamber held at negative pressure in the absence of oxygen.
Carbon Char Vessel	NA	Steam and air are introduced to the decomposed waste form the pyrolysis retort tube to form Syngas and ash.
Oxidizer	NA	Complete oxidation of Syngas with the introduction of air.
Muffle Furnace	NA	Indirect heat to the Pyro Tube from the oxidizer gas.
Carbon Char Container	NA	Closed container not vented; disposal at offsite landfill.
Heat Exchanger	NA	Produces steam to produce Syngas, and to cool the flue gas prior to the ceramic filter system and to the atmospheric stack.
Glosfume®	HMIWI Stack	High temperature ceramic filters capture particulates prior to exiting the stack via induced draft fan.
Dosing Agent Container		Container for metered reagent dosing agent to neutralize acidic compounds.
Diesel Fuel Tank	NA	Insignificant emission unit. (IEU)
Ash Collection Container (IEU)	NA	Ash collection from the Glosfume /ceramic filter system; disposal at offsite landfill.

VII Regulatory Applicability

The emission estimates provided by Monarch in 2016 and later verified during the initial performance test for NSPS Subpart Ec, indicates that the emissions are below the regulatory thresholds for tribal minor NSR permitting, [See the 2019 Part 71 application GIS -5900-79 form] therefore a preconstruction permit is not needed.

The Pyromed 550 Pyrolysis System is subject to the New Source Performance Standards (NSPS) for HMIWI for which construction is commenced after June 20, 1996 [40 CFR Part 60 - Subpart Ec]. Under the NSPS HMIWI, a title V permit (Part 71 operating permit) is required for operations. Therefore, Monarch's HMIWI is subject to requirements of 40 CFR Part 71 as well as the General Provisions of 40 CFR Part 60 and the specific requirements of 40 CFR Part 60, Subpart Ec.

VIII Permitting and Operations History

Monarch commenced operation of the HMIWI on November 20, 2017, and submitted an alternative monitoring plan (AMP) in accordance with 40 CFR § 60.56c(j) for approval of site specific operating parameters for the HMIWI, since the air pollution control equipment installed was a Glosfume ceramic emissions filtration system and differed from any of the configurations specified in the Subpart Ec rule: dry scrubber followed by a fabric filter; a wet scrubber alone; a dry scrubber followed by a fabric filter and wet scrubber; or a selective non-catalytic reduction technology.

Since startup, in November 2018, Monarch has implemented numerous changes and refinements to the overall HMIWI, such as waste feed loading, a change in the type of fuel for startup from natural gas to diesel fuel, specific process unit operational and software design upgrades, changes to emissions control equipment and various ancillary equipment and finally to the operational parameter and emissions monitoring systems.

As a result of the delays in commissioning the unit and conducting the IPT, Monarch could not establish SS-OPLs in order to complete the title V permit application. EPA deemed the title V permit application incomplete on September 29, 2018. Therefore, EPA provided an Administrative Order on Consent (AOC) for Monarch to have limited operations to be able to complete the required tests for the incinerator. The initial test was completed on February 22, 2019, but the IPT did not show compliance with the Dioxins/Furans (D/F) emission limitation as a result of several conditions during testing that resulted in post-combustion formation of D/F. The factors causing the exceedance of the D/F emission limitation were addressed and a retest was conducted on May 16, 2019, and results from all testing conducted were provided to EPA on July 12, 2019. EPA approved the final SS-OPLs on July 25, 2019 based upon the IPT data.

Once the SS-OPLs were set, Monarch amended the initial title V application to incorporate information relating to the equipment and process changes as well as the IPT results to EPA; EPA declared the title V application complete on September 12, 2019.

IX Emission Limitations

Emission limitations for specific pollutants are provided in the NSPS HMIWI, dependent on the size and date of construction of the HMIWI. Monarch's permit limits are taken from Table 1B of the NSPS HMIWI and are provided in Table 4 of the draft permit. See the limits below:

Pollutant	NSPS E_c Limits
Carbon Monoxide (CO)	11 ppmvd
Sulfur Dioxide (SO_2)	8.1 ppmvd
Nitrogen oxide (NO_x)	140 ppmvd
Particulate Matter (PM)	18 mg/dscm

Pollutant	NSPS E_c Limits
Hydrogen Chloride (HCl)	5.1 ppmvd
Dioxin/Furan (D/F)	0.035ng/dscm
Lead (Pb)	0.00069 dscm
Cadmium (Cd)	0.00013 dscm
Mercury (Hg)	0.0013mg/dscm
Opacity	< 6% based on 6-minute block average

X Insignificant Emission Units & Activities

Part 71 allows sources to separately list (in the permit application) units or activities that qualify as "insignificant" based on potential emissions below 2 tpy for all regulated pollutants that are not listed as HAPs under Section 112(b) and below 1000 pounds/year or the de minimus level established under Section 112(g), whichever is lower, for HAPs. Units that qualify as "insignificant" for the purposes of the Part 71 application are in no way exempt from applicable requirements or any requirements of the Part 71 permit. According to the information submitted by the permittee, the following emission units are insignificant based on their calculated emission rates.

The insignificant emission units for the HMIWI are:

1. the 100 gallons diesel fuel tank used for initial startup and to supplement heat when necessary for the operations of the pyrolysis system,
2. closed char collection vessel,
3. the ash collection bin,
4. non-emitting container for sodium bi-carbonate and activated carbon mixture, used for automated dosing of gases entering the Glosfume Ceramic Filter (i.e., additional removal of HCl and metal pollutants prior to final removal of particulates within the Glosfume).

XI Site Specific Monitoring, Reporting and Recordkeeping Requirements

These monitoring requirements were based on the IPT and operating parameters limits for the HMIWI. These have been included as Table 5 in the draft permit. These limits were derived from the IPT results provided to EPA and approved by EPA on July 25, 2019. See the Appendix for the full report.

XII Fee Schedule and Annual Compliance Reports

Monarch provided EPA R6 with the initial estimate of actual emissions in 2018 and paid the appropriate fees. The application has calculated the estimated emissions in mass rates (tons/year) in the Part 71 application forms and will continue to use the formula for future fee payments. All general provisions for the fees and annual compliance reports are in the permit. [Section I through III]

XIII Environmental /Air Quality Impact

The emissions from the HMIWI are below the tribal minor NSR thresholds and therefore will have minimal impact if any to the air quality in the surrounding area. The Nambe Pueblo and Santa Fe area are all in attainment for the criteria pollutants.

The HMIWI is in an enclosed building and was given authority to operate within the terms of the Nambe Pueblo requirements.

XIV Tribal Consultations

Tribal consultations were conducted in accordance with the Regional guidance at: https://www.epa.gov/sites/production/files/2015-08/documents/r6_epa_tribal_consultation_procedures_final.pdf

All tribes within the Santa Fe area of the facility received a letter dated September 12, 2019, offering the 8 tribes surrounding the facility the opportunity to consult with EPA on this action. During the week of September 16th through September 19th, EPA conducted conference calls with 5 tribal representatives. Nambe Pueblo requested a tribal only informational meeting which was held at the Nambe Wellness Center on October 23, 2019. Another community informational meeting for the general public was held on October 24, 2019 at the Pojoaque Valley Middle School in the Frank B. Lopez Auditorium, prior to the public comment period.

XV Notice and Comment

A. Public Notice

As described in 40 CFR § 71.11(a)(5), the draft operating permit must be publicly noticed and made available for public comment. The public notice of the permit action and public comment period is described in 40 CFR § 71.11(d).

A copy of the notice has also been provided to all persons who have submitted an electronic request to be included on the mailing list for EPA issued permits, the 8 tribal Pueblos in the Santa Fe area, and the New Mexico Environmental Department.

The public notice was e-noticed on the EPA website at www.epa.gov/public notices CFR 71.11(d)(3)(iii) and public notices in English and Spanish were also published in three newspapers of general circulation in the area affected by this source.

i. Santa Fe New Mexican
ii. Albuquerque Journal
iii. Rio Grande Sun

B. Opportunity for Comment

Members of the public may review a copy of the draft permit proposed by EPA, the title V permit application, this statement of basis for the draft permit, and all supporting materials necessary for proposing the draft permit. Information provided in the public notice and all information available for review can be found in the EPA docket at http://www.regulations.gov (enter Docket ID No: EPA-R06-OAR-2019-0561).

Abbreviations and Acronyms

Abbreviations, and Acronyms

Source	MWT – Monarch Waste Technologies
Facility	MWT NM-New Mexico
APT	Annual Performance Test
CAA	Clean Air Act [42 United States Code Section 7401 et seq.
Cd	Cadmium
CEMS	Continuous Emission Monitor System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DAS	Data Acquisition System
D/F	Dioxin/Furan
Dscm	dry standard cubic meter
EPA	United States Environmental Protection Agency
HAP	Hazardous Air Pollutant
HCl	Hydrogen chloride
Hg	Mercury
HMIWI	Hospital/Medical/Infectious/Waste Incinerator
ID. No	Identification Number
IPT	Initial Performance Tests
NSPS	New Source Performance Standards
MMBtu	Million British thermal units
mmscf/yr	million standard cubic feet per year
mg	milligram
NOx	Nitrogen Oxides
mNSR	Minor New Source Review
OPL	Operating Parameter Limit
O_2	Oxygen
Pb	Lead
PCL	Programmable Logic Controller
PM	Total Particulate Matter as defined in 40 CFR 60.50
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
PPH	pounds per hour
PT	Performance Test
ppmv	parts per million volume
ppmvd	parts per million volume dry
SO_2	Sulfur Dioxide
VOC	Volatile Organic Compounds
TEQ	toxic equivalency of 2,3,7,8-tetrachlorinated dibenzo-p-dioxin
tpd	tons per day

Appendix

Approval of the Operating Parameter Limits for Monarch Waste Technology (HMIW) Incinerator

Information for the draft permit Table 4 and Table 5 from the EPA Approval Letter dated July 25, 2019, with emission limitations from Table 1B of 40 CFR Part 60 Subpart Ec.

Table 1 : Emission Limitations, MWT Pyromed 550 System			
Pollutant	**Large Continuous HMIWI Emission Limit[1]**	***Monitoring, After IPT***	***Site-Specific OPLs for Emissions Control Established by IPT***
Carbon Monoxide (CO)	11 ppmvd	CEMS[2], 24-Hour Block Average	N/A
Sulfur Dioxide (SO_2)	8.1 ppmvd	CEMS[3], 24-Hour Block Average	N/A
Nitrogen Oxides (NO_x)	140 ppmvd	CEMS[3], 24-Hour Block Average	N/A
Total Particulate Mater (PM)	18 mg/dscm	Site-Specific OPLs, Annual PT[4,5]	*Max Charge Rate; Max Temp for Glosfume; ΔP for Glosfume; Minimum Sorbent Dosing Rate*[6]
Hydrogen Cloride (HCl)	5.1 ppmvd	Site-Specific OPLs, Annual PT[4,5]	*Max Charge Rate; Minimum Sorbent Dosing Rate*[6]
Dioxin/Furan (D/F)	0.035 ng/dscm (TEQ)	Site-Specific OPLs, Annual PT[4]	*Max Charge Rate; Max Temp for Glosfume; ΔP for Glosfume; Minimum Sorbent Dosing Rate*[6]
Lead (Pb)	0.00069 mg/dscm	Site-Specific OPLs, Annual PT[4]	*Max Charge Rate; Minimum Sorbent Dosing Rate*[6]
Cadmium (Cd)	0.00013 mg/dscm	Site-Specific OPLs, Annual PT[4]	*Max Charge Rate; Minimum Sorbent Dosing Rate*[6]
Mercury (Hg)	0.0013 mg/dscm	Site-Specific OPLs, Annual PT[4]	*Max Charge Rate; Minimum Sorbent Dosing Rate*[6]
Opacity	< 6% Opacity 6-Minute Block Average	Annual PT[4]	N/A
Fugitive Ash	*Visible emissions for no more than 5 percent of the hourly observation period.*	***Not Applicable - No Ash Handling System***	N/A

NOTES:

1. Applicability for the Pyromed 550 System is **40 CFR § 60.50c(a)(3)**, therefore, see Emission Limitation Requirements at **40 CFR § 60.52c(a)(2) and (b)(2) -** *Emission Limitations apply at all times in accordance with **40 CFR § 60.56c(a)***.

2. Since the Pyrolysis 550 System was constructed after December 1, 2008, a CO CEMS is required by **40 CFR § 60.56c(b)(10)** and requirements are specified at **§ 60.56c(c)(4)**. For example, the 24-Block Average should be calculated as specified in section 12.4.1 of EPA Reference Method 19 of Appendix A–7; also, *CO CEMS may be substituted for the CO Annual PT*.

3. For use of CEMS other than the CO CEMS, see requirements at **40 CFR § 60.56c(5)**. For example, HCL and PM CEMS may be substituted for the HCl and PM Annual PT, *if certification is done at the time of a PT*. See also note 5, below.

4. See Annual Performance Tests requirements at **40 CFR § 60.56c(c)(1) and (2)**.

5. The CEMS installed on the Pyromed 550 System includes a MIR9000 analyzer for multi-gas monitoring, an oxygen (O2) monitor, and a particulate matter ("PM") monitor with forward light scattering sensor. The facility has an integrated programmable logic controller ("PLC") and data acquisition system ("DAS") with an operator interface panel for overall operations of the Pyromed 550 System, the Glosfume System (i.e., dry scrubber system), and the CEMS. The integrated PLC allows automated shutdown and/or automatic cutoffs of certain system operations as well as automated dosing of the sorbent for gases routed to the Glosfume System. Of special note, the HCl CEMS was not certified as initially planned and a problem with the installed PM CEMS could not be rectified in order to certify the PM CEMS during the IPT. Therefore, *an Annual PT is required for both PM and HCl at this time*.

6. Automatic dosing, a set mix of Sodium Bicarbonate (80 - 90%) and Activated Carbon (10 - 20%).

Table 2. Initial Performance Test, Results Evaluation for MWT Pyromed 550 at Nambe Pueblo

Site-Specific Operating Parameter	Initial Performance Test (IPT) 3-Run Avg Results	D/F Retest 3-Run Avg Results; CEMS	EL's, OPLs Monitoring Type & Frequency	SS-OPL Established by Initial Performance Testing (IPT) and D/F Retest	Permit Condition Compliance Monitoring & Reporting Basis
Category 1 Parameters - Continuous Parameter Monitoring System (CPMS) and Continuous Emissions Monitoring System (CEMS)					
Maximum Hopper/Shredder Loading[1], All Wastes Types (lbs/hr)	554.7 lbs/hr **Total Manually Placed in Hopper/Shredder**	554.6 lbs/hr **Total Manually Placed in Hopper/Shredder**	*Continuous "Load" Counts per Hour* *(Calc from Batch Manual Hopper Loading)*	554.6	*3-Hour Rolling Average (3-Hr RA)*
Maximum Hopper/Shredder Loading, *Specific* Waste Types: Pharmaceutical Waste (Blue Containers) *and* Non-Hazardous RCRA Empty (Black Containers) ***Total Equivalent to 33% of Max Total Loading Rate* (lbs/hr)**	**33% of Max Load**	**same as IPT**	Once/Hr *(Calc from Batch Manual Hopper Loading)*	185	*3-Hr RA*
Maximum Hopper/Shredder Loading, *Specific* Waste Types: Chemotherapy Waste (Yellow Containers) ***Total Equivalent to 33% of Max Total Loading Rate* (lbs/hr)**	**33% of Max Load**	**same as IPT**	Once/Hr *(Calc from Batch Manual Hopper Loading)*	185	*3-Hr RA*
***Maximum Loading Rate,** Regulated Medical Waste (Red Bags)*	**33% of Max Load**	**same as IPT**	N/A	N/A	N/A
Maximum Charge Rate[2], All Wastes Types *Knife-Gate Assembly ("KGA") Push Loading (push counts/hr)*	Indeterminate - *D/F EL Exceeded*	*20 KGA Push Loads per Hr* **Automated Knife-Gate Assembly "Push"** *(12 hour full test avg calc as 22.73 lbs/hr)*	*Continuous "Load" Counts per Hour, PLC* *(Knife Gate Assembly Loads@ 3min/"push")*	20 KGA Push Loads per Hour	*3-Hour Rolling Average (3-Hr RA)*
Maximum Supplemental *Low-Sulfur Diesel* Fuel Flow Rate, gal/hr[3]	21.0	10.5	*Flow Meter Installed for Retest* *Once/Hour*	10.5	*3-Hr RA*
Glosfume System, Maximum Inlet Temperature (T_{max}) °C[3]	236.3	159.6 *(calc @110% of lowest 4-hr run avg)*	*Continuous, PLC* *Once/Min*	159.6	*3-Hr RA*
Glosfume System, Minimum Sorbent Injection Rate (SIR_{min}) lbs/hour[3] **Sodium Bicarbonate (80 - 90%); Activated Carbon (10 - 20%)**	4.5 lbs/hr *(Interpolated average, 22 lbs @ Max Charge Rate)*	16.6 *(calc @90% of highest measured 4-hr run avg)*	*Continuous, PLC*	16.6 lbs/hr @ Max Charge Rate	*PLC* *Continuous, 3-HR RA*
Minimum Pressure Drop Across Glosfume System (ΔP_{min}) mm H_2O[3]	46.2	42.5 *(calc @ 80% of highest 4-hr run avg ΔP)*	*Continuous, PLC* *Once/Min*	42.5	*PLC* *Continuous, 3-HR RA*
Emissions, [O_2] **Diluent Monitor for Calcs** *(7% [O2] Correction for Other CEMS)*	14.2	11.7	*Continuous, PLC* *(7% [O_2] Correction for Other CEMS)*	Certification Valid; PLC for Other CEMS Reporting @ 7% [O_2]	CEMS Continuous, 30-Day Block Avg
Emissions, [CO]	< 4.2	*3.8*	11 ppm vol [CO] CEMS	Certification Valid	CEMS Continuous, 24-Hour Block Avg
Emissions, [SO_2]	< 1.7	*0.02*	8.1 ppm vol [SO2] CEMS	Certification Valid	CEMS Continuous, 24-Hour Block Avg
Emissions, [NOx]	92.6	*60.7*	140 ppm vol [NO_x] CEMS	Certification Valid	CEMS Continuous, 24-Hour Block Avg
Category 2 Parameters - Visual Observations & Other Emission Limits Compliance					
Opacity	0	--	< 6% (6-Minute Block Avg)	Annual PT	Annual PT
Emissions, [PM]	12.1	--	18 mg/dscm	Site-Specific OPLs, Annual PT	Annual PT
Emissions, [HCl]	2.79	--	5.1 ppmvd	Site-Specific OPLs, Annual PT	Annual PT
Emissions, [D/F] ng/dscm (TEQ)	3.85*	0.0329	0.035 ng/dscm (TEQ)	Site-Specific OPLs, Annual PT	Annual PT
Category 3 Parameters - Other Parameters Monitored for Effective Operation or Safety of Unit Ops, etc.					
Pyrotube, Temp °C	774.5°C **(Target Range: 740-800°C)**	**757.0**	**N/A**	***Monitored for Test Purposes Only***	***N/A***
Gasifier (Char Unit), Temp °C	607.8°C **(Target Range: 500-700°C)**	**591.6**	**N/A**	***Monitored for Test Purposes Only***	***N/A***
Oxidizer, Minimum Temperature °C[3,4]	***1050.21*** *(calc @90% of highest measured 3-run avg)*	***1020.51*** *(calc @90% of highest measured 3-run avg)*	***N/A***	***Monitored for Test Purposes Only***	*Use of CO CEMS Allowed in lieu of CPMS Req.* *(See 40 CFR 60.56c(c)(4))*

NOTES:

1. As defined in **40 CFR § 60.51c**, the Pyromed 550 System is considered a large continuous HMIWI with a **Maximum Design Capacity** of **550 lbs/hour**. Preparations for conducting the IPT in late December of 2018 targeted a waste split of *60% Pharmaceutical* and *40% Chemotherapy*. However, this spit was too challenging to achieve steady state and resulted in mass feeds outside of normal operating parameters for the system (i.e., glass content was too high and the type of waste mix fed was therefore outside of the maximum design capacity of the unit, resulting in operational issues across the system and postponement of the IPT). Therefore, the target split of *33.3% Pharmaceutical* and *33.3% Chemotherapy* and *33.3% Red Bag Waste* for the IPT was proposed by MWT and approved by EPA in the December of 2018. Observations and operating issues demonstrated the need to set limits for the Specific Waste Types listed, but a limit on Regulated Medical Waste is not necessary since the waste feed stream is not a "worst-case" waste in comparison to the other streams tested (i.e., in terms of density, chlorine/metals content, combustibility, etc.).

2. The amount of wastes actually processed in the Pyro Tube and Char Vessel during continuous operations depends upon the number of *Knife Gate Assembly (KGA) "Push Loads" per Hour* (i.e., monitored via PLC and hard programmed in the system as a timed "push" every 3 minutes at a fixed volume of 8 cubic feet for the KGA). Therefore, the OPL for the **Maximum Charge Rate** is being set at the ***Maximum KGA Push Load Rate (push load count/hour)***, coupled with the OPLs set at the maximum load rate of all waste types placed in the Hopper/Shredder (lbs/hr) for processing, as measuring during the D/F IPT Retest. *See text discussion for development of this OPL.*

3. Monarch conducted the IPT at only one test condition, but failed to demonstrate compliance with the D/F EL. Therefore, a partial IPT retest was necessary to demonstrate compliance (D/F IPT Retest). Although an identical test condition was implemented, several SS-OPLs must be calculated ***from the D/F IPT Retest results*** in accordance with the rule; therefore, *certain cells are dark grey to indicate values from the IPT are not used for setting the SS-OPL due to exceedance of the D/F EL during that testing event.*

4. The minimum temperature of the Oxidizer would have been set at 90% of the highest three-run average across test conditions demonstrating compliance with all emission limitations (i.e., D/F IPT Retest runs used since only one test condition). However, since *a certified CO CEMS will be used*, the SS-OPL is not required per 40 CFR § 60.56c(c)(4).